

Title (en)

Magnetoresistive head using sense currents of opposite polarities

Title (de)

Magnetoresistiver Kopf mit Leseströmen gegensätzlicher Polaritäten

Title (fr)

Tête magnétorésistive utilisant courants de lecture de polarités opposées

Publication

EP 0803862 A3 19980805 (EN)

Application

EP 97106307 A 19970416

Priority

US 63605996 A 19960423

Abstract (en)

[origin: US6163426A] A magnetoresistive head achieves maximum signal output with minimal electromigration by using a magnetoresistive element through which a unidirectional sense current is flown. Periodically, a control circuit determines whether one or more switching criteria have been met, and applies a counter-directional compensation current in the magnetoresistive element when the switching criteria are met, thus suppressing electromigration in the magnetoresistive element in the direction of said sense current. In a preferred embodiment, the compensation current is applied during a quiescence period. In another embodiment a continuous unidirectional sense current is flown through the magnetoresistive element, and the control circuit suspends the sense current in the magnetoresistive element for a period of time when one or more switching criteria have been met, so as to prevent atomic excursion beyond one atomic diameter, such that electromigration in the magnetoresistive element is substantially reduced in the direction of the sense current.

IPC 1-7

G11B 5/02; **G11B 5/40**; **G11B 5/39**

IPC 8 full level

G11B 5/39 (2006.01); **G11B 5/012** (2006.01); **G11B 5/02** (2006.01); **G11B 5/035** (2006.01); **G11B 5/40** (2006.01); **G11B 5/455** (2006.01); **G11B 5/49** (2006.01); **G11B 5/00** (2006.01); **G11B 5/09** (2006.01); **G11B 19/04** (2006.01)

CPC (source: EP US)

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Citation (search report)

- [A] PATENT ABSTRACTS OF JAPAN vol. 018, no. 685 (P - 1848) 22 December 1994 (1994-12-22)
- [A] PATENT ABSTRACTS OF JAPAN vol. 017, no. 681 (P - 1660) 14 December 1993 (1993-12-14)
- [A] PATENT ABSTRACTS OF JAPAN vol. 095, no. 006 31 July 1995 (1995-07-31)
- [A] PATENT ABSTRACTS OF JAPAN vol. 095, no. 009 31 October 1995 (1995-10-31)

Cited by

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Designated contracting state (EPC)

DE NL

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DOCDB simple family (application)

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